The Coronavirus Pandemic and Potential Implications

Executive Summary

The coronavirus pandemic is an X-event (extreme event) that has impacted many aspects of our global society. The conclusions in this whitepaper are the result of applying systems analysis and foresight methods to look at a post-Coronavirus world. The objective of the analysis is to provide actionable information that can form the basis of public policy to increase society's resilience to negative "aftershocks" that may lead to further instability.

The multi-step analysis began by identifying the areas of our society that are now the most dynamic and uncertain and using those as the basis to analyse three scenarios. Finally, a more detailed systems analysis was conducted on the LOW probability, HIGH impact scenario defined as "What if unemployment remained at 30% or higher for longer than one year?" Analysing this type of scenario helps identify effective policy measures to mitigate the impact of the scenario, even if it only partially materialises.

Key Findings

1. Analysis of the Coronavirus systems map identified a number of uncertainties that have been created. These include the impact on populism, nationalism's impact on social stability, the impact on the role of China, and the availability of external funding for governments. These uncertainties impact central components of the systems map (Figure 1), such as the stability of government and financial systems, unemployment, stability of society, status of global governance, and migration. The three components at the highest risk of rapid decline are the stability of society, government, and financial systems.

2. The three scenarios analysed used the uncertainties identified above as the parameters and were based on a 3-month pandemic, 6-month pandemic, and a 12-18 month pandemic. The results from the 3-month and 6-month scenarios suggest that governments should focus on transparent communication, building confidence that they will do "whatever it takes" to support individuals and the economy, addressing people's level of panic and fear for their future, and being conscious that "have nots" may develop a scarcity mentality that leads to unrest.

3. The detailed systems analysis of the third scenario (12-18 month pandemic with 30%+ unemployment) suggests that the central components of the system include radicalisation, unemployment, anger at institutions, multi-year cycle of the virus, decrease in household income, and society pulls together. The dynamics of the systems map (Figure 2) suggest that once radicalisation is triggered it will be difficult to stop. The component of "society pulls together" counterbalances radicalisation and helps keep it from growing rapidly.

4. Preventing radicalisation involves a two-part policy approach. First, the development of policy initiatives that address the components that contribute to radicalisation (Figure 3) can decrease the likelihood of radicalisation being triggered. Second, policy initiatives that increase the impact of the "society pulls together" component will balance against radicalisation. Policy examples include transparent communication and actions, supporting the positive perception of institutions, and building societal commitment to the government's plans for managing the pandemic.

The Global X-Network, a research network specialized in X-events

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Detailed Overview

The Coronavirus has caused a global X-event that has destabilised many facets of our complex society. This analysis uses systems maps to highlight the aspects of our society that have been the most affected by the Coronavirus. It identifies interdependencies such as how the social system impacts the economic system and how geopolitics impacts on political decision making.

The analysis has been refined through a multi-step process. The initial step identified the areas of our society that are now the most dynamic and uncertain. These uncertainties formed the basis of three scenarios that were examined. The final step involved a detailed systems analysis of a key scenario that is LOW probability but HIGH impact – "What if unemployment remained at 30% or higher for longer than one year?"

Analysing a low probability, high impact scenario identifies the key components that shape the behaviour of the entire system if the scenario were to occur. Identifying the key components allows public policy to be created that includes preventative measures to build resilience and absorb the impact of the scenario. The analysis has value even if the scenario only partially materialises. Policy changes based on the key components will still be effective if unemployment doesn't reach 30% or doesn't remain at 30% or higher for longer than one year.

What is an X-event?

The Coronavirus pandemic is an X-event on a global scale. An X-event is an extreme event that occurs in response to a shock that triggers a society to move rapidly from a point of apparent stability to a point of great uncertainty and instability. The society may have been stable and resilient enough to absorb many different types of shocks without triggering an X-event. However, there may be other characteristics of a society that make it vulnerable to certain shocks, thus triggering an X-event.

In the case of the Coronavirus, some characteristics of our global society that reduced its resilience to the shock include open borders, limited ability to produce certain goods locally, limited healthcare capacity, and overconfidence that the virus would be contained early. The Coronavirus resulted in a shock that played to these areas of low resilience because of its specific characteristics. These include a long incubation period where carriers are contagious, mild or no symptoms are experienced by some contagious individuals, and other individuals have severe symptoms and require specialised medical equipment and care. A virus with different characteristics may have resulted in an even more significant X-event, or none at all.

The Coronavirus Systems Map

The systems map below illustrates the interdependencies between the primary aspects of society that are being impacted in a post-Coronavirus world. Green arrows indicate a positive interdependency where, as one aspect increases the other also increases. Red arrows indicate a negative interdependency where, as one aspect increases the other decreases. Blue arrows indicate interdependencies where the relationship is unknown.
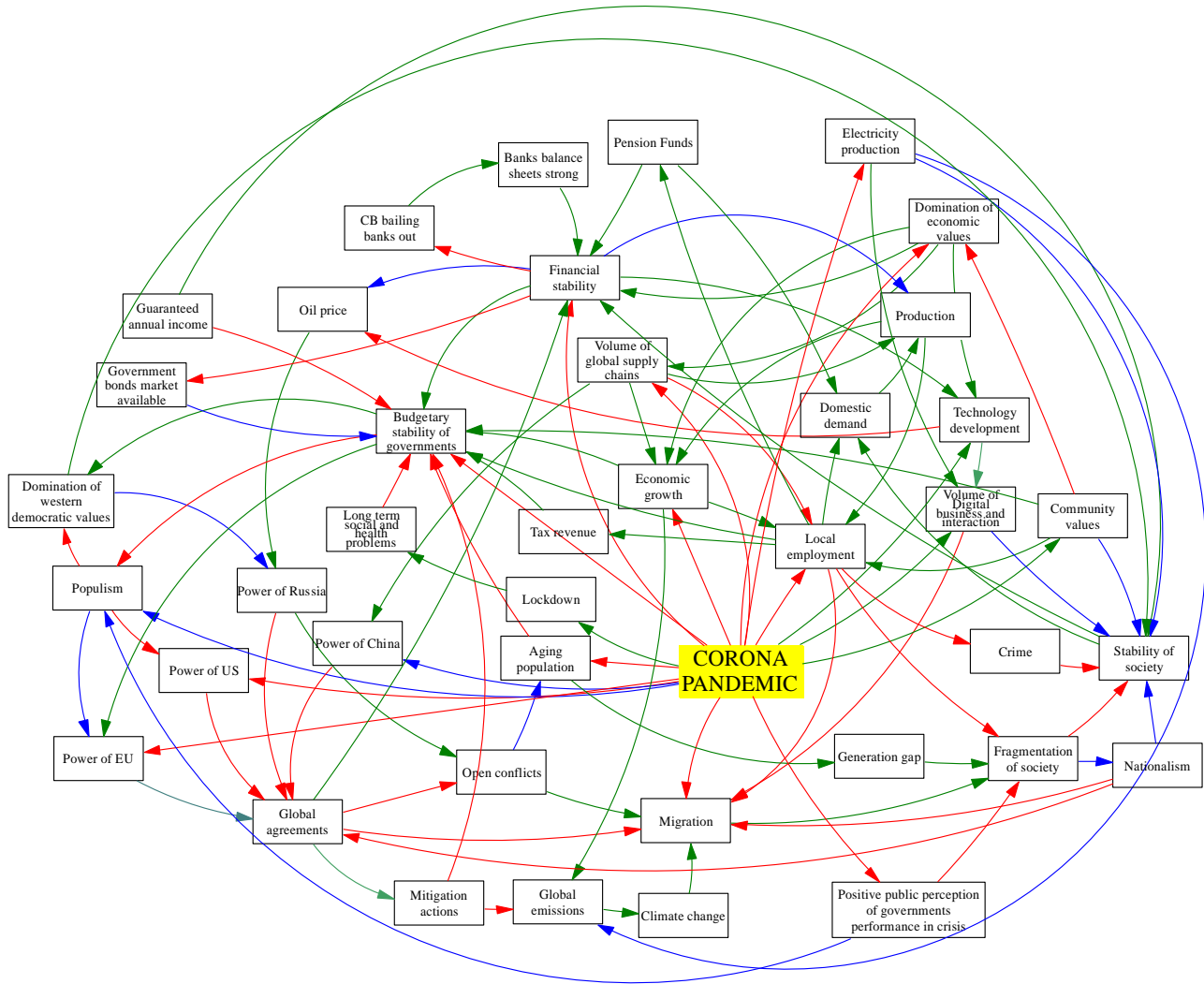
Figure 1 - Coronavirus Systems Map

Systems analysis focuses on the central components and the feedback loops between components. The central components are the ones with the largest number of connection points, and hence the highest level of interdependence with other components. Analysis of feedback loops highlights what aspects of the systems map are the most dynamic and how the systems map will evolve.

Systems Analysis Results

There are inherent uncertainties such as the length of the pandemic, whether subsequent waves of the virus will emerge, and whether long-term immunity is possible. The systems analysis revealed the following additional uncertainties created by the Coronavirus pandemic:

- Impact on populism
- Nationalism's impact on social stability
- Impact on the role of China
- Availability of external funding for governments

The central components of the system that are most impacted by the uncertainties are:

- Budgetary stability of governments
- Unemployment
- Stability of the financial system
- Stability of society
- Status of global governance
- Economic values
- Migration

Feedback loop analysis suggests there is a reinforcing dynamic. This implies that if the Coronavirus triggers long term negative developments, there will be a reinforcing cycle of decline in the most significant feedback loops that will be very difficult to reverse. The most significant feedback loops are centred on the following components:

- Stability of society
- Budgetary stability of governments
- Stability of the financial system

Scenario Analysis

The matrix below is known as a morphological matrix and it outlines the parameters for the scenario analysis. The columns represent the key dimensions of uncertainty from the analysis of the systems map. The rows represent the alternative states the dimensions of uncertainty might have.

Length of pandemia	Value change	Populism	Role of China	Availability of funding for governments	Global governance	Financial system	Stability of society	Migration
3 months	economic values get stronger	populism gets more support	weaker both economically and politically	available	stronger	stabilizes itself	improves	borders are closed
6 months	community values grow	people return to traditional politics	economic role weaker, but politically stronger	available only from China	weaker	collapses	stays same	huge refuge flows
12-18 months	fragmentation of society	polarization of political support	political role weaker, but funding role stronger	not available at all	asymmetric, varies in different fields	weak institutions collapse	destroyed in many countries	migration managed quite well

The three scenarios chosen were:

1. Three months until the pandemic subsides, resulting in a 3% decline in annual GDP
2. Six months until the pandemic subsides, resulting in a 6% decline in annual GDP
3. 12-18 months until the pandemic subsides, resulting in more than 10% decline in annual GDP

Scenario 1 – Three-month pandemic, 3% decline in annual GDP

Length of pandemia	Value change	Populism	Role of China	Availability of funding for governments	Global governance	Financial system	Stability of society	Migration
3 months	economic values get stronger	populism gets more support	weaker both economically and politically	available	stronger	stabilizes itself	improves	borders are closed
6 months	community values grow	people return to traditional politics	economic role weaker, but politically stronger	available only from China	weaker	collapses	stays same	huge refuge flows
12-18 months	fragmentation of society	polarization of political support	political role weaker, but funding role stronger	not available at all	asymmetric, varies in different fields	weak institutions collapse	destroyed in many countries	migration managed quite well

NOTE: The light squares represent the parameters used in the scenario for each dimension of uncertainty.

An overview of the scenario:

- Quick containment, 20% of the population infected, fatal for 0.6% of population, 80% of fatalities are seniors
- Unemployment rate temporarily spikes
- Bridge financing and relief is needed for affected companies and individuals
- Lockdown may create long term health issues (alcoholism, drugs, depression, domestic violence)
- Consumer demand and international trade restored 6 to 9 months after the pandemic ends

Public perception and outlook during this scenario:

- Short-term panic and fear for the economic future
- Needs confidence in the government to bridge the short-term economic gap
- Needs information to provide context and build confidence (i.e. transparent reporting)

Scenario 1 Results

Recommended government actions:

- Provide confidence that all measures will be taken to secure economy and support companies and individuals ("Whatever it takes")
- Provide bridge financing to companies to ensure full employment and to individuals affected to provide economic security
- Lower lending rates

How should countries react during the pandemic in order to succeed afterwards?

- Create a financial stimulus program worth 3% of GDP
- Support companies to stay in operation and maintain employment levels, even if at reduced capacity. This means a quicker re-start after the pandemic
- Support individuals and provide economic security

Scenario 2 – Six-month pandemic, 6% decline in annual GDP

Length of pandemia	Value change	Populism	Role of China	Availability of funding for governments	Global governance	Financial system	Stability of society	Migration
3 months	economic values get stronger	populism gets more support	weaker both economically and politically	available	stronger	stabilizes itself	improves	borders are closed
6 months	community values grow	people return to traditional politics	economic role weaker, but political stronger	available only from China	weaker	collapses	stays same	huge refuge flows
12-18 months	fragmentation of society	polarization of political support	political role weaker, but funding role stronger	not available at all	asymmetric, varies in different fields	weak institutions collapse	destroyed in many countries	migration managed quite well

NOTE: The light squares represent the parameters used in the scenario for each dimension of uncertainty.

An overview of the scenario:

- 40% of the population infected, fatal for 1.2% of population, 80% of fatalities are seniors

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- Unemployment rate at 30% for 6+ months
- Bridge financing and relief is needed for affected companies and individuals
- Restructuring of work and move towards de-globalisation leading to increasing labour productivity
- Lockdown may create long term health issues (alcoholism, drugs, depression, domestic violence)
- Consumer demand and international trade restored in 6 to 9 months after pandemic ends

Public perception and outlook during this scenario:

- Prolonged panic and fear for the economic future
- "Have nots" develop scarcity mentality leading to unrest
- Needs confidence in the government to bridge the economic gap
- Needs information about next steps and to provide context and build confidence

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Scenario 2 Results

Recommended government actions:

- Provide confidence that all measures will be taken to secure economy and support companies and individuals ("Whatever it takes")
- Provide bridge financing to companies to ensure full employment and to individuals affected to provide economic security
- Lending rates lowered to 0%
- Orderly shutdown/transfer of any failing institutions to protect individual wealth and confidence

How should countries react during the pandemic in order to succeed afterwards?

- Top countries are able to take on additional debt worth 6% of GDP. Weaker countries need the support of wealthy countries and/or China
- Support companies to stay in operation and maintain employment levels, even if at reduced capacity. This means a quicker re-start after the pandemic
- Support individuals and provide economic security

Scenario 3 – 12 to 18 month pandemic, 10%+ decline in annual GDP

Length of pandemia	Value change	Populism	Role of China	Availability of funding for governments	Global governance	Financial system	Stability of society	Migration
3 months	economic values get stronger	populism gets more support	weaker both economically and politically	available	stronger	stabilizes itself	improves	borders are closed
6 months	community values grow	people return to traditional politics	economic role weaker, but politically stronger	available only from China	weaker	collapses	stays same	huge refuge flows
12-18 months	fragmentation of society	polarization of political support	political role weaker, but funding role stronger	not available at all	asymmetric, varies in different fields	weak institutions collapse	destroyed in many countries	migration managed quite well

NOTE: The light squares represent the parameters used in the scenario for each dimension of uncertainty.

An overview of the scenario:

- 60% of the population infected, fatal for 1.8% of population, 80% of fatalities are seniors
- Unemployment rate at 30% for 12+ months
- Significant bridge financing and relief needed
- Global financial system collapses, many large companies go bankrupt
- Civil unrest and crime increase prominently
- Internet collapses and uncertainty increases
- Consumer demand and international trade restored in 9 to 12 months after the pandemic

Public perception and outlook during this scenario:

- Prolonged fear for the economic future
- Widespread scarcity mentality leads to unrest and violence
- Needs confidence in government to bridge the economic gap
- Needs information about next steps and to build confidence

Scenario 3 Results

Recommended government actions:

- Provide confidence that all measures will be taken to secure the economy
- Provide bridge financing to key companies to provide economic security
- Lending rates lowered to 0%
- Secure food supply for population
- Orderly shutdown/transfer of any failing institutions to protect individual wealth and confidence
- "Bretton Woods"-like agreement needed to re-establish global financial order

How should countries react during the pandemic in order to succeed afterwards?

- Few countries can take on debt worth 10%+ of GDP. Mid-strength countries need the support of US, Germany, and/or China. Weakest countries spiral towards collapse.
- Prioritise support to allow key companies to stay in operation
- Secure food and necessities for the population
- Support individuals and provide economic security
- Secure borders and manage immigration

Scenario 3 – Detailed Systems Analysis

The third scenario above is the most extreme. It is a LOW probability, HIGH impact scenario that can be used to identify the key components that shape the behaviour of the entire system if the scenario were to occur. Identifying the key components allows public policy to be created that includes preventative measures to build resilience and absorb the impact of the scenario.

This scenario is based on the coronavirus pandemic lasting for more than 12 months and results in at least 30% unemployment for this time period. Using the prolonged level of high unemployment as the driver for how economic and social aspects of society will be impacted, the following systems map was developed.
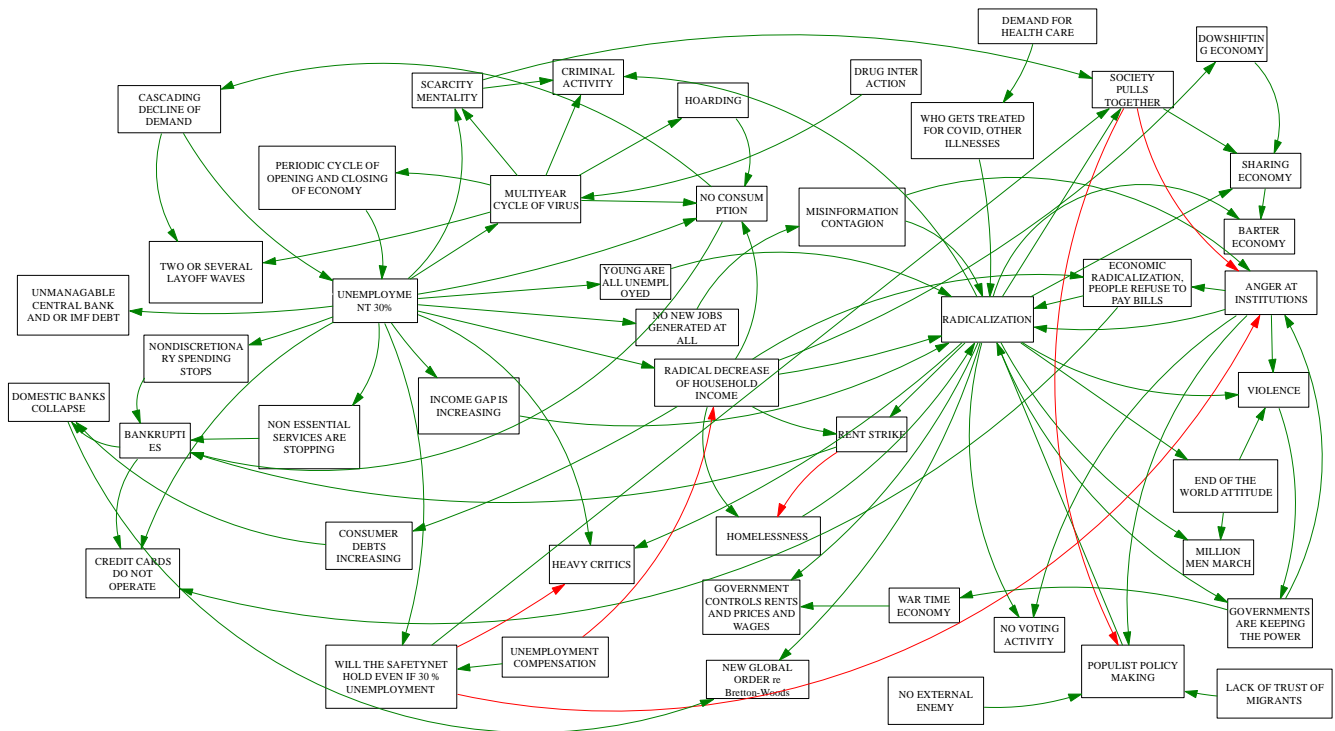
Figure 1 - Systems Map for Scenario 3

Scenario 3 Systems Analysis Results

The central components that shape the behaviour of the system are:

- Radicalization (primary component)
- Unemployment
- Anger at institutions
- Multi-year cycle of the coronavirus
- Radical decrease in household income
- Society pulls together

Feedback loop analysis suggests the majority of the feedback loops that include 'radicalization' are reinforcing. This means if unemployment triggers the development of radicalization it will be very difficult to reverse.

The balancing component is "society pulls together." This develops when different groups form and focus their efforts for the good of society.

How to Prevent Radicalisation

Radicalisation is the primary component shaping the behaviour of the system in Scenario 3 (12-18 month pandemic with 30%+ unemployment). Because it is included in many of the feedback loops in the systems map, once it's triggered it will build momentum quickly. Radicalisation is balanced by the system component of "society pulls together." If this balancing component can be triggered, it will either slow the development of radicalisation or keep it from being triggered.

The figure below shows the components of the scenario 3 systems map that contribute to the development of radicalisation. Developing policy measures related to these components may reduce the probability of radicalisation being triggered.
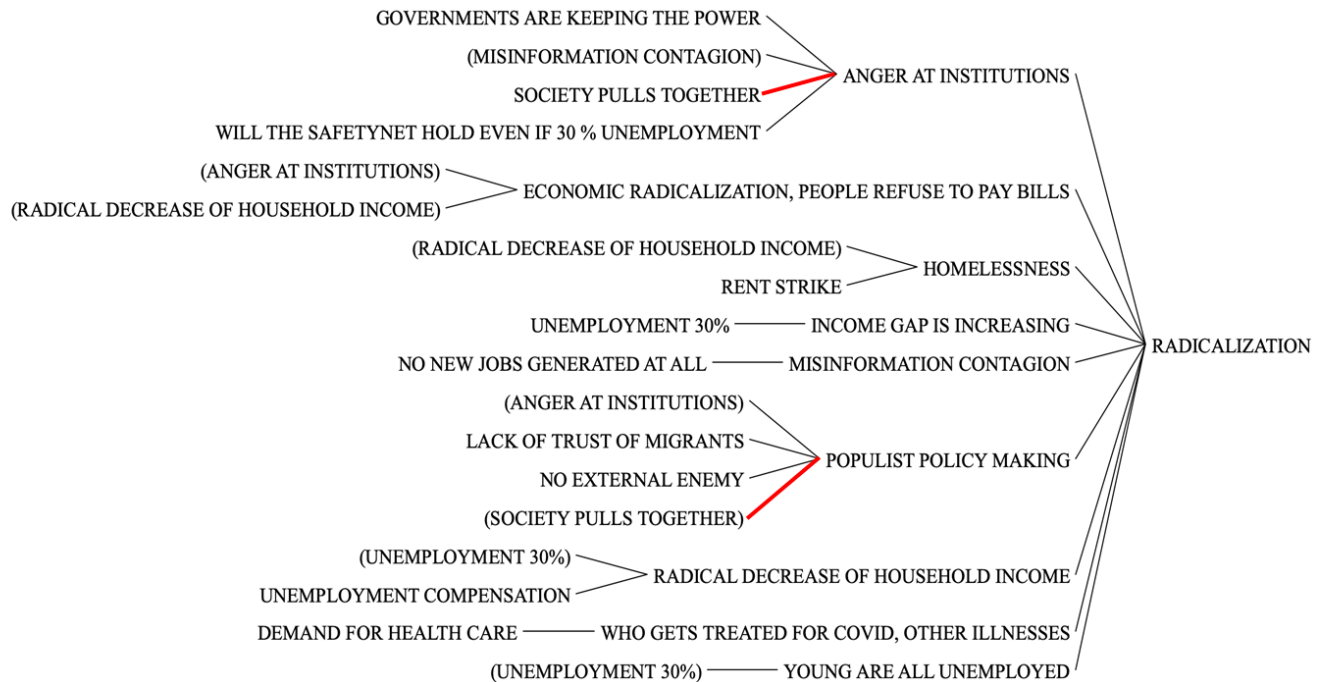

Figure 2 - Components Contributing to Radicalisation

Conclusions: How to Prevent Radicalisation

The probability of radicalisation being triggered can be reduced by examining the components that contribute to radicalisation in Figure 3 and developing policy initiatives to decrease the impact of the components.

The exception is the "society pulls together" component. Policy initiatives to increase the impact of this component and increase the level of commitment to the society will balance against radicalisation. Policy examples include:

- Transparency of communications and actions
- Supporting the positive perception of the capabilities and actions of institutions
- Build societal commitment through actions such as including citizens in decision making

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